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OUR COVER

"We're Number One!" shouted members of the Malmstrom AFB, Olympic Arena '76 team, winners of the Blanchard Trophy. The Malmstrom Minuteman missile wing, commanded by Col. William R. Brooksher, captured 16 awards at the missile combat competition.

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DIRECTOR'S SAFETY NET

Col. Jesse S. Hocker
SAC Director of Safety

A RECOMMENDATION

Several years ago, it was a requirement that each SAC pilot periodically receive training in the T-33 ground link trainer. On one such occasion, I was accomplishing a trainer mission which included practice on jet penetrations. At that time, I had logged several hours in this type of trainer and felt quite confident in my ability to fly the machine. As I rolled out of the penetration turn, on my third penetration, the course needle centered up, the airspeed was right on, and the vertical speed indicated the exact rate of descent. I couldn't help but inwardly reflect on how well things were going. I was just approaching 10,000 feet on my way to three, when a strange thing happened — the altimeter stopped. This was accompanied by an unwinding of the airspeed and a loud laugh from a friend who had been leaning over the side of the trainer watching me. It was then — much to my chagrin — that I realized I had misread my altimeter — by 10,000 feet.

When this type of error is made in a ground trainer, it is embarrassing and humbling. If it happens in an airplane — your worries are over. Unfortunately, we still experience aircraft accidents that have resulted from an acceptance of incorrect clearances, attempting to level off at the wrong altitude, failure to follow published approach procedures, etc. This is particularly disturbing since it often occurs in multi-place aircraft which require a system of monitoring and cross checks between crewmembers to prevent such an occurrence. Principal contributing factors which appear to be inherent in these types of accidents can generally be categorized into three broad areas: (1) complacency on the part of one or more members of the crew to learn or strictly comply with tech data; (2) ineffective crew coordination which permits a combined crew error; and (3) the pilot or pilots are distracted, which results in an aircraft deviation that goes undetected by other members of the crew.

Flight crews must be acutely aware of the seriousness of these departures from established and proven procedures, and continually and conscientiously endeavour to insure that they are in no way reflected in their performance. Each crewmember must be keenly attuned to the detection of significant aircraft deviations during the critical phases of flight. Laxity in this regard can permit the deviation to progress to a point where recovery becomes impossible. There is no easy solution to crew coordination. It requires hard work by the crew — both individually and collectively. To be effective in the air, it must be studied, discussed, and practiced on the ground. Crew discipline is a necessary ingredient to its success. Strict adherence to flight manual procedures is a subject that cannot be overemphasized. As with crew coordination, it requires hard work, study, and discipline.

Those who enjoy sports are aware of the enjoyment that is derived from watching a well disciplined and proficient team perform — as each member individually and collectively contributes to a corporate effort through strict adherence to a common strategy or game plan. Good flight crews operate in much the same manner. Basic to Strategic Air Command's strong standardization program, which has over the years resulted in the savings of many lives and aircraft, is the concept that crews should function as a team. The very foundation of this program is based upon crew discipline, crew coordination, and compliance with tech data. If you haven't given these three areas the emphasis they deserve, I highly recommend them for your consideration. You may not be fortunate enough to make your big mistake in the simulator.

OLYMPIC ARENA

Members of the 341st Strategic Missile Wing, Malmstrom AFB, earned the right to cheer for themselves at Olympic Arena '76. They dominated the Command's missile combat competition, winning the Blanchard Trophy and 15 more of the 22 awards available to them. It was the first Blanchard win for the Malmstrom missileers, who led the competition from the second day.

COMPETITION HIGHLIGHTS

Maj. Don Green
DOMMO, Hq SAC

On 30 April 1976, General Russell E. Dougherty, commander in chief, Strategic Air Command, awarded the Blanchard Perpetual Trophy to the 341 Strategic Missile Wing, Malmstrom AFB as the best strategic missile wing in SAC. This presentation culminated a week of intense competition among the most highly qualified and proficient missilemen in SAC.

It took the 341 Strategic Missile Wing's best effort to win the Strategic Air Command Missile Combat Competition. But when the Minuteman unit won, they did it in style.

The Malmstrom contingent swept 16 of the 22 trophies available to them, including the coveted Blanchard Trophy. To earn the title "Best of the Best", the Montana wing scored 5209 points, 93.7 percent of their possible total. The 351 Strategic Missile Wing, Whiteman AFB, Mo., Malmstrom's closest rival, trailed by

only 1.1 percentage points. Winning Best Titan II Wing honors was the 381 Strategic Missile Wing, McConnell AFB, Kan. The Kansans finished in fourth place overall with an 89.4 percent effort.

The Men from Malmstrom dominated all three areas of Olympic Arena competition: operations, maintenance and support. Besides the Blanchard, they take back to Montana the trophies for Best Minuteman Wing, Best Operations, Best Crew, Best Minuteman Crew, Best Maintenance Team, Best Minuteman Electro-mechanical Team, Best Minuteman Electronic Laboratory Team, Best Minuteman Missile Handling Team, Best Communications Team, Best Minuteman Communications Team, Best Civil Engineering Team, Best Minuteman Civil Engineering Team and Best Single Crew Exercise. They also garnered the Air Force Association's Award for Best Minuteman Operations and the Air Force Logistics Command Best Minuteman Logistics Trophy.

In addition to their standing as the top Tital II wing, the McConnell AFB unit won the awards for Best Titan Crew, Best Titan Re-entry Vehicle Team, Best Titan Electronics Team, Best Titan Missile Maintenance Team and Best Titan Communications Team. They also will receive the Air Force Logistics Command Titan Logistics Trophy. The wing was the Blanchard Trophy winner last year and in 1972.

The second-place Whiteman unit won Best Minuteman Targeting Team and Best Vehicle Support Team. Taking four Olympic Arena trophies was the 308 Strategic Missile Wing, Little Rock AFB, Ark. They won Best Titan Guidance Team, Best Titan Propulsion Team, Best Titan Civil Engineering Team, Best Titan

Lt Gen. James M. Keck, Strategic Air Command vice commander in chief, addresses the competitors during the opening ceremonies on the morning of April 22.

Vehicle Support Team and the Air Force Association award for Best Titan operations.

The 321 Strategic Missile Wing, Grand Forks AFB, N.D. won three categories of competition including Best Minuteman Missile Maintenance Team, Best Security Police and Best Minuteman Security Police Team. Taking the honors for Best Titan Security Police Team was the 390 Strategic Missile Wing, Davis-Monthan AFB, Ariz.

Olympic Arena '76, the nickname for the annual SAC Missile Combat Competition, was the ninth missile competition since the event originated in 1967. The first year the missile competition was called "Curtain Raiser," and for that time in the history of the missile force, the best launch crews and maintenance teams in the command came together to compete for the top missile award. The 351 Strategic Missile Wing bested the other eight missile units that year and took the Blanchard Trophy to Whiteman.

Because of command-wide operational commitments in Southeast Asia, the missile competition was not held in 1968. However, the framework for the 1969 missile competition was being constructed during that time and in 1969, the missile competition, now called Olympic Arena, was resumed. The year layoff intensified rather than lessened the competitive spirit, and that year the 321 Strategic Missile Wing from Grand Forks took top honors.

This year, late in April, the best of the SAC missile force gathered at Vandenberg once again to vie for the Blanchard Trophy. This California base has been the host of the missile competition in the past because of its unique position of possessing missile procedure trainers as well as the launchers of the current missile weaponry. Vandenberg was not new to the combat crew competitors since officer and enlisted crewmembers receive their initial operational readiness training there. Also, many of the crew and maintenance personnel have been to Vandenberg before to support operational test launches of missiles from their units.

Firing the M-16 rifle, Sgt. Robert D. Trammel, 381st Strategic Missile Wing, McConnell AFB, competed in the security police portion of the 1976 Missile Combat Competition. Security police teams at Olympic Arena 1976 were also evaluated with written examination, intruder exercises, and missile convoy exercises. Their team scores, along with the scores of their unit's missile combat crews and maintenance, communications and civil engineering teams, determined their unit's success in the ninth gathering of SAC's nine missile wings.

This competition is designed to be the catalyst for a program to measure the professional ability which competitors have obtained through dedicated study and intense training. From the intensive preparation and the spirited competition itself, tangible benefits are sought which improve the readiness, responsiveness, and efficiency of the missile force in its contribution to SAC's mission of strategic deterrence. In the competitor selection and training process individual and team skills are sharply honed, new procedures and tools developed and tested, technical order procedures and equipment improvements identified, and more efficient and effective operations evolve. The competition has and will continue to produce dividends in missile force effectiveness as each wing's inno-

On April 22, commanders of the nine missile wings competing at the 1976 Strategic Air Command missile combat competition — Olympic Arena — prepared to draw envelopes containing competition schedules from the Blanchard Trophy. From left are Colonels William R. Brooksher, 341st Strategic Missile Wing (SMW), Malmstrom AFB, Mont.; Jimmy F. Scott, 381st SMW, McConnell AFB, Kan.; Ray E. Miller, 90th SMW, F.E. Warren AFB, Wyo.; Pierce L. Smith, 91st SMW, Minot AFB, N.D.; William M. Kottas, 351st SMW, Whiteman AFB, Mo.; Judson C. Faurer, 44th SMW, Ellsworth AFB, S.D.; Joe L. Church, 321st SMW, Grand Forks AFB N.D.; Joe P. Morgan, 308th SMW, Little Rock AFB, Ark.; and Joseph P. Cerny, 390th SMW, Davis-Monthan AFB, Ariz.

vations and contributions are evaluated and shared through the missile competition itself.

The objectives of this year's expanded competition remain much the same as those of the past competitions: refinement of current operations, maintenance, and support procedures and techniques, exchange of professional information among all SAC missile units, recognition of outstanding missile personnel and enhancement of esprit de corps throughout the SAC missile force. These objectives have always been met with outstanding success during previous competitions and were again in the 1976 competition.

Each of the nine missile wings were represented by four combat crews and their teams from missile maintenance, communications, vehicle support, security police and civil engineering.

The support teams participated in their own unique exercises. The maintenance exercises differ from the operations exercises in that the maintenance personnel use operational equipment at the launch facility. Also, Titan and Minuteman teams did not perform identical tasks because of the marked difference between the systems.

As the week of competition progressed, results were posted on the competition scoreboard and flashed to Headquarters SAC and missile

Continued on Page 11

Donald Toso, a member of the Ellsworth AFB, S.D. civil engineering team at Olympic Arena '76, was congratulated on his first place standing going into the fifth day of competition by 1st Lt. T. J. Crews, a member of the Ellsworth team. Mr. Toso was one of two civilian technicians competing for the first time.

SAC WINS BLUE STEEL TROPHY IN . . .

GIANT STRIKE VI

Lt Col Richard W. Blatter
Editor

In April the Strategic Air Command participated in the Royal Air Force Strike Command's Bombing and Navigation Competition, Giant Strike VI. As usual, the British were superb hosts and they showed our crews and support personnel outstanding hospitality, warm comaraderie and fierce competition. For practice missions and scored events, our four crews, as well as the RAF tanker competitors, operated out of RAF Marham UK. Each bomber crew flew two identically sequenced night profiles that included one high bomb, one night celestial and two low bombs. Navigation legs and simulated bomb releases were scored by RBS sites in the UK and significant mission factors were converted to points which determined final standings and awards.

One of SAC's objectives in the competition was to exercise the command's capability to deploy operational forces to a forward operating location and to begin sustained air operations. The competition itself is designed to test the operational standards and the skills of our crews and squadrons. All crews were competing for the following three major Giant Strike awards.

- The Blue Steel Trophy — is won by the air force whose crew scores the highest combined score in bombing and navigation.
- The Electronics Trophy — awarded for the best overall results in two basic night celestial navigation legs.
- The Camrose Trophy — awarded to the crew that scores the most points in both high and low level bombing.

The Royal Air Force Bombing and Navigation competition dates back to 1926 when a trophy was awarded to the RAF in honor of Captain Laurence Minot who was killed in WWI while serving with the RAF. The original trophy was awarded to the best crew in visual bombing in competition between other RAF

Returning to Offutt with trophies won at Giant Strike VI are Gen. Russell E. Dougherty CINCSAC, Maj. Gen. John W. Burkhart, CINCSAC/DO, Lt. Gen. Brian M. Shotts, Commander 15AF and Col. Richard A. Burpee CINSAC/DOT.

bomber squadrons. However, in 1955 the visual bombing feature was updated and changed to radar bombing. Competition continued each year through 1956 with a break during the WWII years.

SAC first participated in the British competition at Brize Norton in 1958 with six B-52Ds and crews from the 92BMW at Fairchild. In the 1958 competition the 92d won five of six awards for which it was eligible to compete. In 1960 crews of the 6BMW from Roswell participated with six B-52Es and won best unit award in combined areas of bombing and navigation. Individual crews also won top awards in bombing and in combined areas of bombing and navigation.

No competition was held in '64, '66, '69, '74, and '75.

From 1970 through this year's event our crews have continued to score well in the spirited Giant Strike competition.

In 1970 the 319th, 320th, and 379th put it together and won the Blue Steel Trophy for the best combined score in bombing and navigation. In 1971, the 410BMW from K.I. Sawyer won the Blue Steel Trophy for SAC and for the first time the 340 Bomb Group and the 509BMW each sent an FB-111 to participate in a demonstration capacity.

The 2d, 17th, 28th and 449th Bomb Wings participated in 1972 and the 28BMW from Ellsworth captured the Blue Steel Trophy for the Command. In 1973, the 5th, 17th, 319th and 410th Bomb Wings participated and in that competition SAC units placed second, seventh, eighth, and ninth overall.

We have established a noteworthy series of successes since the early days of Giant Strike and again this year our crews continued to reflect their competitive spirit. SAC crews captured the Blue Steel Trophy for the fourth time and this year's competition marked the first time in history that a SAC crew has won the Camrose Trophy.

The following competitors represented SAC in this year's competition.

Left to right: TSgt Cecil Minge, Gunner; 1Lt Lee Stone, Navigator; Capt Andy Johnson, Pilot; TSgt Dick Carpenter, Crew Chief; Col Keith Cain, Task Force Commander; Capt Pete Glawe, Copilot; Capt Tom Lloyd, Radar Navigator; SSgt Jerry Johnson, Bomb Nav Technician; Capt Ross MacKenzie, Electronics Warfare Officer.

GIANT STRIKE VI
FINAL STANDINGS

Blue Steel Trophy
(Bombing and Navigation)

Overall 22 Competitors	AC	Possible Points 1000 Bomb	Possible Points 600 Nav	1600 Points Possible	SAC Units
1	Johnson	948	392	1340	320BMW
4	Stickler	855	379	1234	2 BMW
6	Hinton	897	289	1186	92BMW
14	Van Keuren	466	531	997	97BMW

Electronics Trophy
(Navigation)

Overall 34 Competitors	AC	Possible 600 Points	SAC Units
3	Van Keuren	531	97BMW
9	Johnson	392	320BMW
10	Stickler	379	2BMW
17	Hinton	389	92BMW

Camrose Trophy
(Bombing)

Overall 22 Competitors	AC	Possible 1000 Points	SAC Units
1	Johnson	948	320BMW
2	Hinton	897	92BMW
5	Stickler	855	2BMW
20	Van Keuren	466*	97BMW

*Lost radar

Each crew is assigned to a unit equipped with the B-52G.

320BMW, Mather: P Capt Andy Johnson, CP Capt Pete Glawe, RN Capt Tom Lloyd, N 1Lt Lee Stone, EW Capt Ross Mackenzie, G TSgt Cecil Minge.

2BMW, Barksdale: P Capt Dave Stickler, CP Capt Mike Miller, CP 1Lt Al Doi, RN Capt Len Teixeira, N 1Lt Jim Smith, EW 1Lt Mike Miller, G TSgt Lee Cramer.

92BMW, Fairchild: P Capt Larry Hinton, CP 1Lt Tom Hollingsworth, RN Capt Jim Wieborg, N Capt Will Stothart, EW Capt Al Price, G MSgt Lance Hallmark.

97BMW, Blytheville: P Capt Terry Van Keuren, CP Capt Lee Anthamatten, CP 1Lt Joe Roberts, RN Capt Terry O'Brien, N 1Lt Dan Currey, EW 1Lt Harry Calcutt, G TSgt Jim Britton.

In addition to 4 SAC B-52Gs, 18 Vulcan bombers, 9 Victor tankers and 3 Vulcan reconnaissance aircraft also participated in Giant Strike VI.

Excellence is the name of the game in any competition and Giant Strike VI was no exception. Excellence was apparent in every facet of the RAF's preparation and execution of the competition. Excellence was obvious in the performance of each RAF and SAC competitor — especially Capt Andy Johnson and his crew.

Hats off to our hosts, the RAF, for staging such a fine event.

OLYMPIC ARENA 76

Continued from Page 7

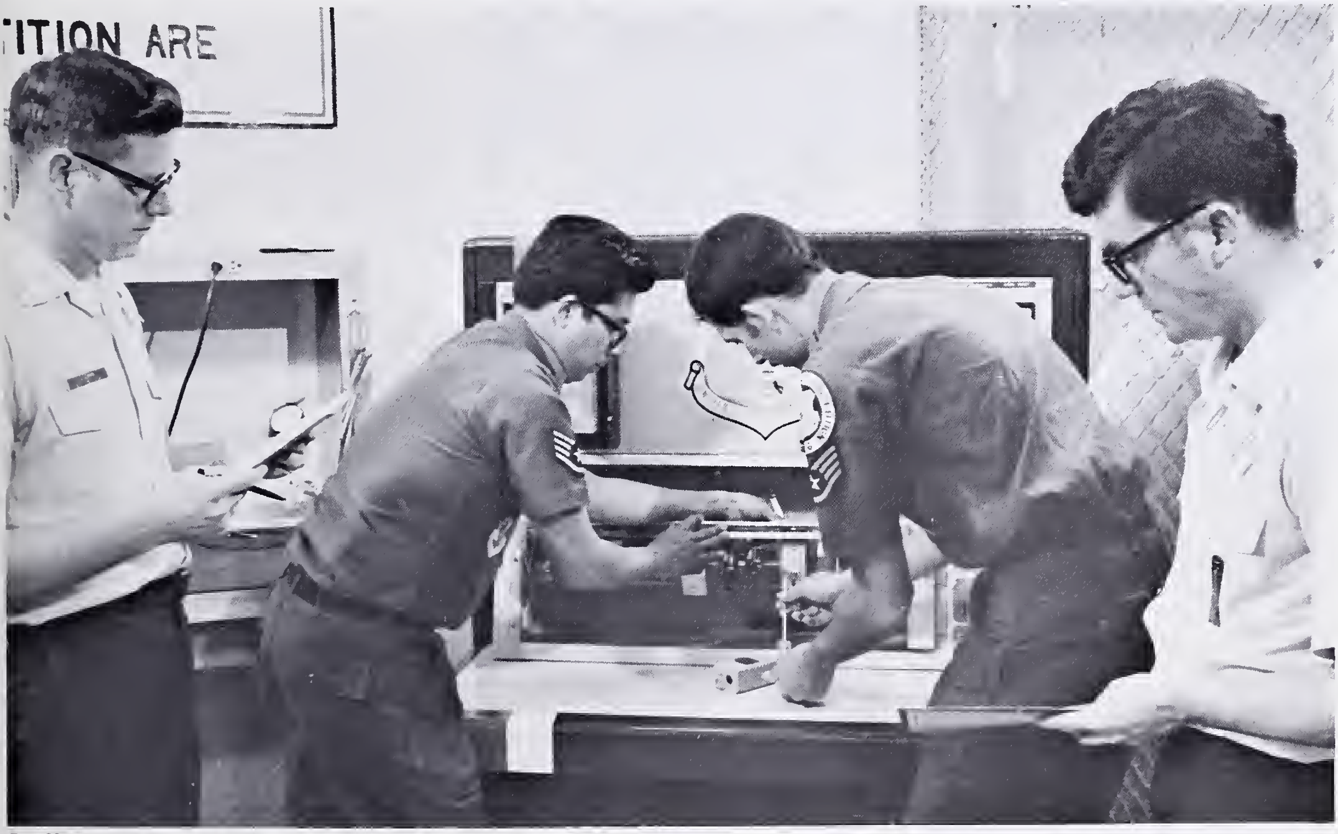
wings throughout the country. At stake were the best crew and team awards, the best Minuteman and Titan wing awards and the most coveted award, the Best Missile Wing in SAC.

Lt. Gen. James M. Keck, vice commander in chief of the Strategic Air Command, officially opened the ninth renewal of Olympic Arena.

Speaking to an audience of missilemen and their guests, General Keck stressed the great value of these competitions in terms of the lessons learned, techniques improved and hardware developed.

"Never before in history has there been a weapon system to compare with the strategic missile force in readiness, in reliability and in accuracy," General Keck said. "But, as you know, hardware alone is not enough. A missile without a trained and competent crew makes little

Sergeants Glenn D. and Pamela K. Pickett, husband and wife, represented the 308th Strategic Missile Wing, Little Rock AFB, Ark., at Olympic Arena '76, the Strategic Air Command Missile Combat Competition. Both are members of their unit's missile maintenance team. They worked together in a scored exercise in removing and replacing the reentry vehicle of a Titan II missile.



Staff Sergeants Herman V. Tijerina, left rear, and Thomas A. Karns, right rear, the communications team representing the 390th Strategic Missile Wing, Davis-Monthan AFB, Ariz., bench check circuits of Titan II missile communications equipment as Staff Sergeant Richard R. Goodman, left, and Master Sergeant Merle D. Davison, 3901st Strategic Missile Evaluation Squadron, Vandenberg AFB, score their Olympic Arena '76 exercise. This was the first year communications support teams were included in the competition.

The combat targeting team from the 351st Strategic Missile Wing, Whiteman AFB, Mo., was evaluated on an exercise during Olympic Arena '76. Technical Sergeant Harold D. Baker, left, and 1st Lieutenant Levi D. Lowman, Jr., right, establish headings for a Minuteman missile and program the missile's onboard computer with target information, as their actions are scored by Technical Sergeant Rodney D. Ramsey, center, 3901st St Strategic Missile Evaluation Squadron, Vandenberg AFB, Calif.

contribution to our defense. It is you — the combat crews, the maintenance, security, transportation, civil engineering and communications teams — who make the missile system what it is, a valuable member of the strategic Triad in support of our national policy."

Citing reasons for holding the competition, General Keck said, "We learn much from competitions. This knowledge has allowed the improvement in the areas of technical data and procedures and has led to the development of new equipment and improvements in existing equipment."

Following General Keck's remarks, commanders of the competing wings drew envelopes containing schedules listing times for the various competitions for the Blanchard Trophy.

Olympic Arena '76 took on a new look this year, a look befitting the celebration of the nation's bicentennial.

The new look began with a redesigned Olympic Arena insignia bearing two U.S. flags, the old and the new, and the dates "1776-1976."

The nine SAC missile wings competing in the event were also sporting the bicentennial look. F. E. Warren AFB, Cheyenne, Wyo., recalled its historical past with an information booth decorated with Indian artifacts and U.S. Army Cavalry gear. The booth was manned by missilemen dressed in authentic cavalry uniforms.

Other booths and their themes included Ellsworth AFB and nearby Mt. Rushmore; Minot AFB with its mining and missiles; and Grand Forks AFB's Red River Americana. Pioneer themes were depicted in the booths of Little Rock AFB, Malmstrom AFB, Whiteman AFB, McConnell AFB, and Davis-Monthan AFB.

This year's competition produced a number of "firsts." For the first time, Communications, Civil Engineering and Vehicle Support personnel participated in the competition. A husband-wife team were members of the TITAN Reentry Vehicle Team from the 308th SMW, Little Rock AFB, Arkansas. DAF civilian personnel competed in the Civil Engineering exercises representing Ellsworth AFB, SD and Davis-Monthan AFB, AZ. Finally, SAC's total dominance of the Competition was broken when the MAC Civil Engineering Team from Little Rock AFB, AR (supporting the 308 SMW) captured the Best Civil Engineering Team Award.

On the morning of 30 April, all competitors gathered for the last time as the Commander in Chief, SAC, saluted the best among the best by presenting the Blanchard Perpetual Trophy to the top strategic missile wing — the 341st.

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Airman David Turko, right, and Airman First Class Paul M. Gonzales center, the civil engineering team from the 321st Strategic Missile Wing, Grand Forks AFB, service the electrodialysis water filtration unit of a Minuteman missile launch facility. Scoring their Strategic Air Command Missile Combat Competition exercise is Technical Sergeant Charles Hightower, left, 3901st Strategic Missile Evaluation Squadron, Vandenberg AFB.

Preparing a Minuteman missile re-entry vehicle for installation, Staff Sergeants John A. Rasmussen, left, and Michael D. Shaul, members of the missile maintenance team from the 341st Strategic Missile Wing, Malmstrom AFB, compete in Olympic Arena '76. Their exercise was scored on adherence to technical data, accuracy, and performance within time limits.

ABOUT THE AUTHOR

Major Don Green, SAC Olympic Arena project officer takes time to observe score postings at Vandenberg. Major Green, one of the busiest men at the competition has served as project officer for the event for two years. He is presently assigned to Headquarters SAC as the Chief, Operations Branch, Missile Management Division, Directorate of Missiles. Prior to assuming his present duty, he was assigned to the 90th Strategic Missile Wing, Francis E. Warren AFB, Wyoming. Major Green was a Missile Combat Crew Commander and later became Commander, 320th Strategic Missile Squadron and Assistant Deputy Commander for Operations, 90th Strategic Missile Wing. He has over seven years of missile experience.

An Olympic Arena Highlight . . .

THE GROOBERS

RIDE AGAIN

Lt Col Richard W. Blatter
Editor

An entertainment highlight of Olympic Arena '76 was F. E. Warren's *New Warren Groobers*. This popular singing group galloped out of Wyoming to appear at Olympic Arena '76 courtesy of the Cheyenne Chamber of Commerce Military Affairs Committee.

My first opportunity to see and hear the *Groobers* was at a dining-out at Offutt last winter. In order to get to Omaha, the *Groobers* used overland transportation and battled some of the Great Plains' normally severe weather. Certainly a noble effort on the part of the *Groobers*. They put on a fine show and also reflected the spirit of SAC missile duty — and several other unique features of Air Force life. All of their lyrics showed a fundamental understanding of "what's happening." Their show was a complete smash.

The *Groobers* first formed up in the spring of '74 when Capt Malcolm McCown joined with Capt Burch Theisen and Capt Rollie Stoneman. Butch and Rollie, neighbors at F. E. Warren AFB had been singing old folk songs in each other's living rooms for several months before Butch volunteered them as entertainment for a training division Christmas party.

It was at that party that their parody *Little Boxes* was introduced and received acclaim from all in attendance. After that the unexpected demand for performances created an obvious need for more than one "missile" song. As anyone who has ever pulled missile alert duty knows, there is a great deal of time for the mind to wander and Rollie's mind wandered to the point of writing several more songs.

About this time Butch and Rollie also felt the need to add a third voice to the group. Following a short, highly disorganized search, Malcolm McCown joined them and the *Groobers* were formed. Malcolm brought with him an uncanny ability to imitate John Denver and a lead-guitar style that blended perfectly to the tone of the group.

For about six months, the group was content to entertain themselves and anyone else brave enough to listen. When allowed to go out in public, they played mostly for small squadron parties and informal get-togethers.

In November '74, they performed at a base-wide function and their "missile" songs were such a success that various base organizations began requesting them weeks in advance.

Early in '75, Wally Odd performed with the *Groobers*. No one had the heart to ask him to leave so Wally just stayed on and the group became a quartet. In his short time as a *Groober* Wally has mastered such instruments as the wood block, spoons, and tamborine as well as playing a pretty fair "gut bucket."

The *Groobers* also appeared at Olympic Arena '75 and attracted the attention of General Russell E. Dougherty. Later, at a dining-out in August 1975, General Dougherty personally presented them with a special award recognizing their performance at that year's Olympic Arena and their contribution to the coming of age of the missile force. His interest with the support of Col Christopher S. Adams, Jr., then 90SMW commander, prompted the four singing missilemen to consider recording their original material. In mid-December 1975, they released a stereo LP entitled "Missile Duty's Pleasin' . . .?"

They are primarily a stage group specializing in dinner shows, after-dinner entertainment and stage performances. They have also entertained at numerous civic functions and charity benefits. Their entertaining efforts have enhanced military-civilian relations in Cheyenne as well as many other areas. Without doubt, we will hear more from this SAC team in the months and years ahead. The group includes:

Capt Rolland R. Stoneman (Rollie), when not playing the 12-string guitar with the group, is a missile combat crew commander with the 321SMS and supplemental controller with Warren's 90SMW Command Post.

Capt Malcolm L. McCown (Tight Shorts), who plays the guitar, is a missile combat crew commander at the 320SMS Alternate Command Post.

Capt Wallace S. Odd II (Odd Wally), the spoons player with the quartet, is a missile combat crew commander with the 320SMS.

1Lt George Lawrence Theisen II (Butch), who plays the washtub with stick and rope, is also a missile combat crew commander with the 320SMS.

HANGAR FLYING

CENTRAL FLIGHT INSTRUCTORS COURSE

HANGAR FLYING
4018 CCTS/CFIC
CARSWELL AFB TX 76127

Information in these articles is nondirecti

That's a smooth platform tank, is the autopilot really off?

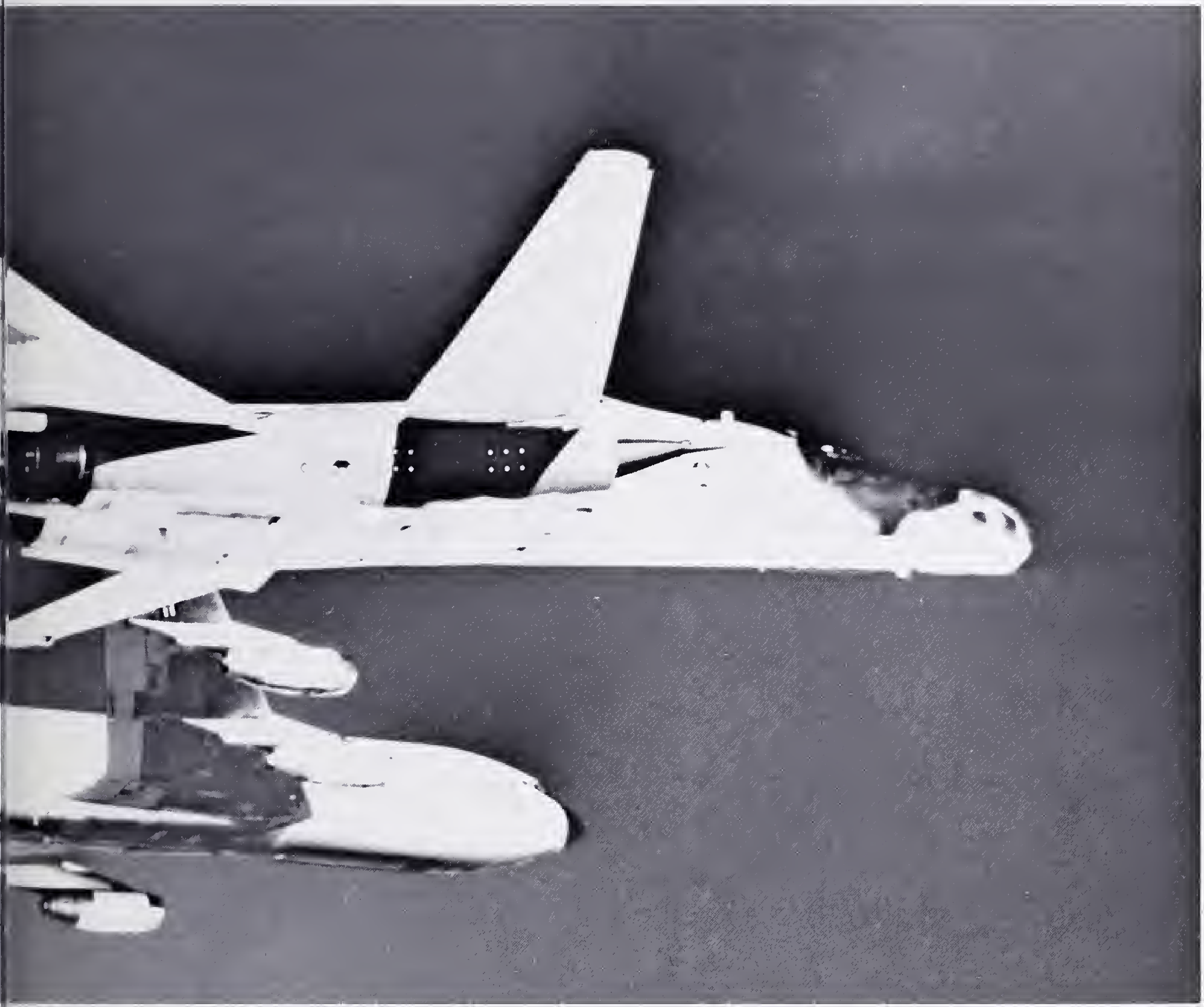
When your receiver asks if the autopilot is really off because the platform is smoother than "George," the compliment tells you that you're doing it right — keep it up. If you are still working on it like the rest of us then this article can provide some elevator and aileron techniques to provide a smooth platform plus an effective way to counteract tanker wing rocking.

Our objective as a tanker pilot is to hold the same smooth attitude reference that we were taught as trail formation leaders in undergraduate pilot training. Since a receiver is using our fuselage and wings as an attitude reference, he can stay in position easily as long as our changes are steady and smooth. Once in position we can turn, climb or descend and still provide the same smooth platform since the platform is a matter of yoke input technique and not a precise airspeed, altitude or heading. To simplify the description of techniques, lets look at elevator and aileron inputs separately.

ELEVATOR

As a large receiver approaches the contact position, the change in the airflow angle over the tanker's horizontal stabilizer causes the tanker to be out of trim in the nose down direction. This requires a nose up trim adjustment. The distance from the contact position where this effect begins will vary with receiver size. For example, the need for the first trim input will begin at 30 feet for the B-52 and 50 feet for the C-5. For the B-52, small inputs of nose up trim are usually put in at 30, 20 and 10 feet from contact.

If the receiver approaches the tanker too low, the trim change is less noticeable until the receiver comes up to contact position where it takes effect all at once. This rapid change in trim requirement makes it hard to maintain a smooth pitch attitude platform. It's likely that you'll be caught off guard as the tanker suddenly pitches nose down, and you will probably have to scramble to maintain pitch control while trying to trim off the fairly heavy back pressures. From a receiver, the whole sequence looks wild as the tail goes up and then plunges back



The purpose of hangar flying is to share experiences and stimulate interest in safe, effective techniques.

down toward him. Since the problem is caused by the receiver coming in too low and then up, the easy solution would be for our receiver to make a normal approach. However, since even the best receivers might occasionally approach low, especially during training, we should be alert to counteract the effect. A good technique is to trim nose up at 30, 20 and 10 even if forward pressure is necessary on the yoke so that the forward pressure can be relaxed smoothly as the receiver comes up to the contact position.

Once we have a contact, elevator inputs to change or maintain pitch are made with smooth and steady pressure on the yoke. Even if you find that the airplane is climbing or descending, apply steadily increasing pressures to slowly change the pitch attitude to gradually get the performance you want. To check your technique, see what the yoke is doing while you're flying. If it is motionless or moving so slowly its hard to detect, then you're doing fine. If you're squeezing the yoke hard and its jerking fore and aft even a little, you're making it tough on your receiver who is sitting right under the tail in trail formation. Those abrupt small movements of the yoke fore and aft are making very large up and down movements of the tail. Sometimes your best friends won't tell you if the platform is rough unless you ask. So ask your receiver about your platform. Chances are he's having trouble, but he thinks it's just HIM. If the two of you aren't doing so well, relax your grip and return to applying pressures on the yoke rather than movements and both of you should have an easier time.

CFIC receiver pilots all agree that tanker "hands-off" is the smoothest platform. During an evaluation you have plus or minus 300 feet from your target altitude which gives you a 600 feet layer that's "ON ALTITUDE." So as far as grading criteria goes you can relax and use as much of it as necessary. Next let's look at aileron inputs.

AILERON

There are actually two separate aileron input techniques necessary to refuel, and the trick is to be able to identify what's going on so you can apply the proper input to the yoke.

The first technique is easy since you are maintaining or changing bank about the same as when you are not refueling. Similar to the elevator technique, you use smooth steady pressures to gradually maintain or change the bank attitude. The evaluation heading tolerance is plus or minus 11 degrees so use the whole 22 degrees if necessary. The second technique is more difficult and is the most challenging part of refueling. You must be alert to counteract boom yaw — induced roll tendencies with prompt and aggressive aileron inputs to prevent tanker wing rocking. Note that you need to be able to do both at once. For example, you could be banking for a turn while keeping the wings from rocking.

It may be necessary during training for the boom operator to advise the tanker pilot on interphone of the receiver's movements, left or right. With practice, the tanker pilot knows by himself because of the direction of the yoke inputs necessary to counteract rolling tendencies. Let's take a look at what is causing the roll tendency.

Contrary to popular belief, the yaw effect of the receiver's movement by itself is negligible. This can be demonstrated by holding the boom at zero azimuth while a receiver who is not hooked up moves back and forth.

During refueling when the boom operator flies the boom from side to side to follow the receiver, the boom causes the yaw and rolling tendency. Since the boom is attached to the tail of the tanker, its movement to the side causes yaw similar to the airplane rudder. This can be demonstrated by flying the boom from side to side without a receiver. The yaw-induced roll tendency from the boom is quite strong, and with hands off the yoke could rock the tanker wings to 30 degrees or more. Needless to say, that would be a shabby bank platform with a receiver in contact, therefore, our job is to stay alert and use timely aileron inputs to counteract the roll completely before it starts or even after it has just started.

If the receiver moves slowly to the side while doing an azimuth limit demonstration and returns slowly to center, the task is fairly easy. As he goes to the right, the right yaw produces a right roll tendency. You would apply steady left aileron pressure as required as the receiver moved right and gradually relax the pressure as he returned to center.

If the receiver swings from side to side the task gets much more difficult as any tanker pilot has or will find out. The receiver has his work cut out for him since his airplane is actually stable in the zero azimuth or center position and would roll hands off toward the center. If he turns his yoke toward the tanker center, the combined effect of the airplane tendency to return to center plus his input would result in an overshoot to the other side. While the receiver is attempting to stabilize his movement and return to center and stop, the tanker pilot should be providing a stable bank attitude that doesn't rock from side to side. The technique to prevent wing rock is to apply prompt and aggressive aileron inputs. Even if some bank has already started, use enough aileron input to return the bank quickly back to the target bank.

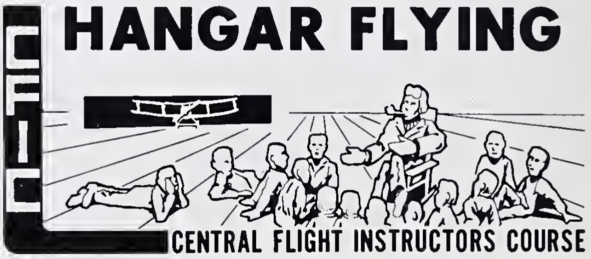
The reason for this emphasis on keeping the bank constant when the receiver moves is that if the tanker wings are allowed to rock even slightly, the receiver bank gets out of phase with the tanker bank. With the tanker and receiver rocking in opposite directions, they cause each other's bank to increase at an increasing rate which usually results in a disconnect.

At first glance this technique to prevent wing rock looks like gross over controlling since the yoke may actually move around a lot. The indication of effectiveness is not the yoke input so much as the actual tanker bank attitude. It should remain constant or if upset returned immediately to the target bank. The bank indicator on the ADI can be watched closely, or if in visual conditions, keep the earth's horizon constant against side windows across the cockpit.

Aileron yoke technique is probably the most challenging part of refueling so it would be a good idea to practice it and even warm up before the receiver arrives. Fortunately, since the boom movement is the cause of our rocking problems, the boom operator can provide valuable practice enroute to the refueling or while waiting for a receiver. Have the boom operator lower the boom early and move it from side to side. Since you don't have a receiver back there yet you can try different input techniques until you're satisfied you have the hang of it. When the receiver shows up he'll certainly be happy with the results.

SUMMARY

When refueling autopilot off, pitch and bank inputs are applied differently. Maintain or change pitch with smooth and steady pressures on the yoke. Aileron inputs should also be smooth and steady when maintaining or changing tanker bank, however prompt and more aggressive inputs may be needed to counteract the effects of boom azimuth movement. The next article will discuss receiver refueling techniques. In the meantime, if your receiver likes your platform better than the autopilot's, you know the two of you have really gotten it together — keep it up.



OUT BASKET

ANOTHER VICTORY — The Col. Lee R. Williams Memorial Missile Trophy for 1975 has been awarded to the 341st Strategic Missile Wing, Malmstrom AFB. The trophy honors the most outstanding strategic missile wing in Strategic Air Command.

FLIP REALIGNMENT IN THE PACIFIC — On 15 July 1976, the Pacific and South Asia (PSA) and the Australia, New Zealand and Antarctica (ANZA) FLIP Enroute and Terminal publications will be combined into a single package. The title of the new publication will be the same as Area Planning 3 — Pacific, Australasia and Antarctica (PAA). The New PAA FLIPs will also be published on an expanded cycle.

The PSA and ANZA Supplements will be combined into a single PAA Supplement. The Enroute Chart coverage will remain the same, but the current ANZA Charts 1-9 will become PAA Charts 11-19. The charts and supplement will be published every 16 weeks with a Military Aviation Notice (MAN) issued at the intervening 8-week mid-point.

The Instrument Approach Procedure (IAPs) will be combined into three high/low combination volumes. These volumes will also contain the Standard Instrument Departures (SIDs) plus any existing expanded airfield diagrams and Standard Terminal Arrival Routes (STARs). The radar minima for the airfields will be moved from the Supplement to the front of these volumes. The IAP volumes will be published every 24 weeks. Two bound MANs will be published at each of the 8-week intervals between cycles with the second MAN being cumulative.

MCMXLVII

Ground Safety Awards

The USAF Safety Awards Board recently announced the winners of the 1975 Ground Safety Certificates. The Gound Safety Certificate is a new award and is described in AFR 900-26, Section O. Basically the award is for units with an authorized strength of less than 100 and who achieve a perfect ground accident record during the award year. Safety officers, look at your complete organization — you may have a detachment that qualifies at the end of 1976. The following are the SAC units who were awarded the 1975 Ground Safety Certificate. Congratulations.

4200 Test Eval Sq, Edwards AFB, CA

Det 1, 1CEVG, La Junta, CO

Det 4, 1CEVG, APO New York 09012

Det 7, 1CEVG, Ashland, ME

Det 8, 1CEVG, Blue Grass Army Depot, KY

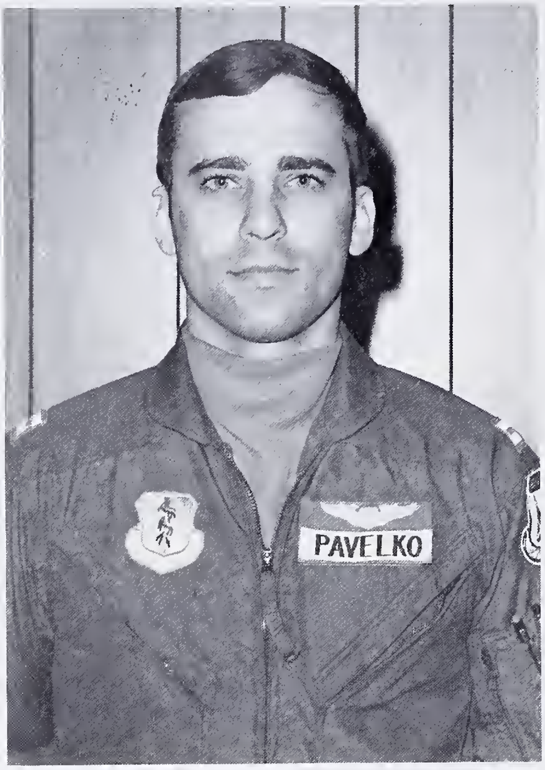
Det 10, 1CEVG, Hastings AFS, Hastings, NE

Det 11, 1CEVG, Fort Drum, Great Bend, NY

Det 12, 1CEVG, U.S. Naval Ammunition Depot, Hawthorne, NV

Det 24, 1CEVG, APO San Francisco 96334

PROFESSIONAL



FLYING CREW

Crew R-76, 380 Bombardment Wing, Plattsburgh AFB: Captain Robert J. Pavelko, pilot; and Captain Michael R. Sprenger, radar navigator.

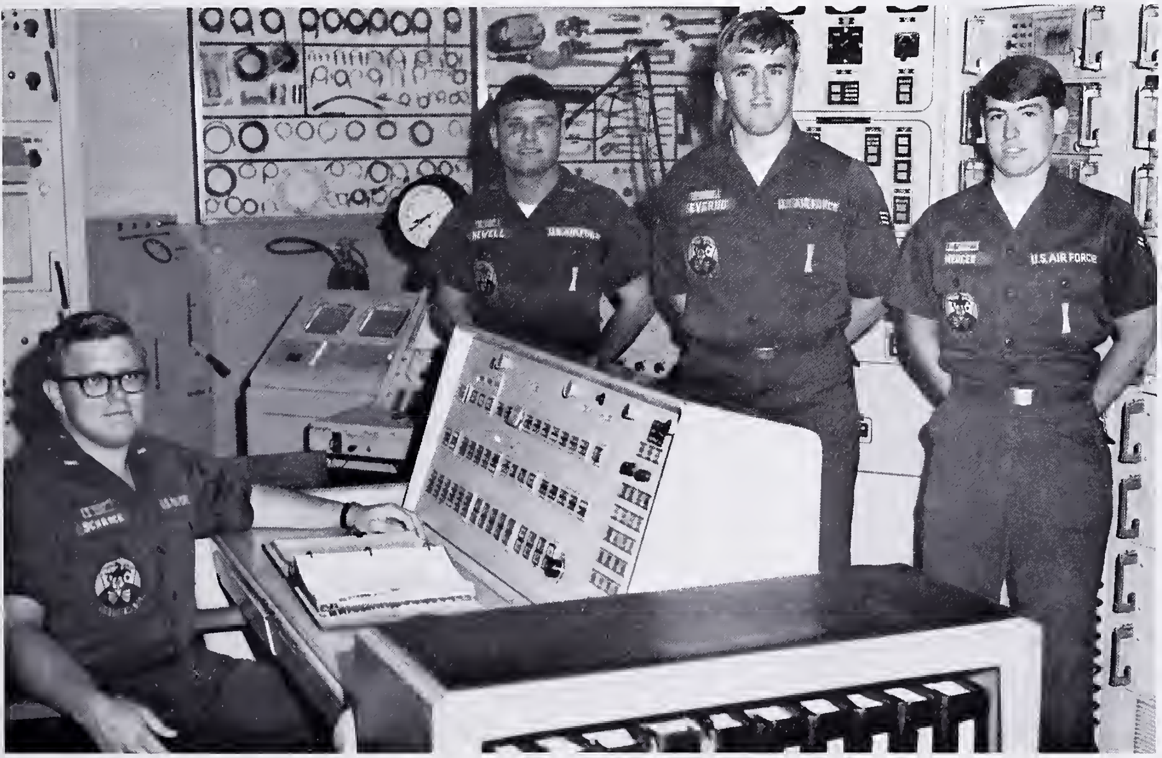
MINUTEMAN Crew E-148, 90SMW, F. E. Warren AFB: MCCC Capt Howard Q. Moody, DMCCC 1Lt Gregory W. Hood.

PERFORMERS

Individuals selected for these pages as SAC's top professional performers of the month are chosen from nominations made by all SAC units. Selection is made only after all nominations have been carefully screened and those chosen meet the highest standards of excellence as outlined in SACM 127-2.

MAINTENANCE MAN MSgt Henry W. Habenick, 341SMW, Malmstrom Air Force Base.

SAFETY MAN TSgt Ricardo N. Guerra, 90 Security Police Group, F.E. Warren Air Force Base.



TITAN Crew R-012, 390SMW, Davis-Monthan AFB: MCCC 1Lt Lee W. Schrock, DMCCC 2Lt Bruce A. Newell, MSAT A1C James T. Mercer, BMFT Sgt Timm L. Severud.

BIG INSTRUMENT

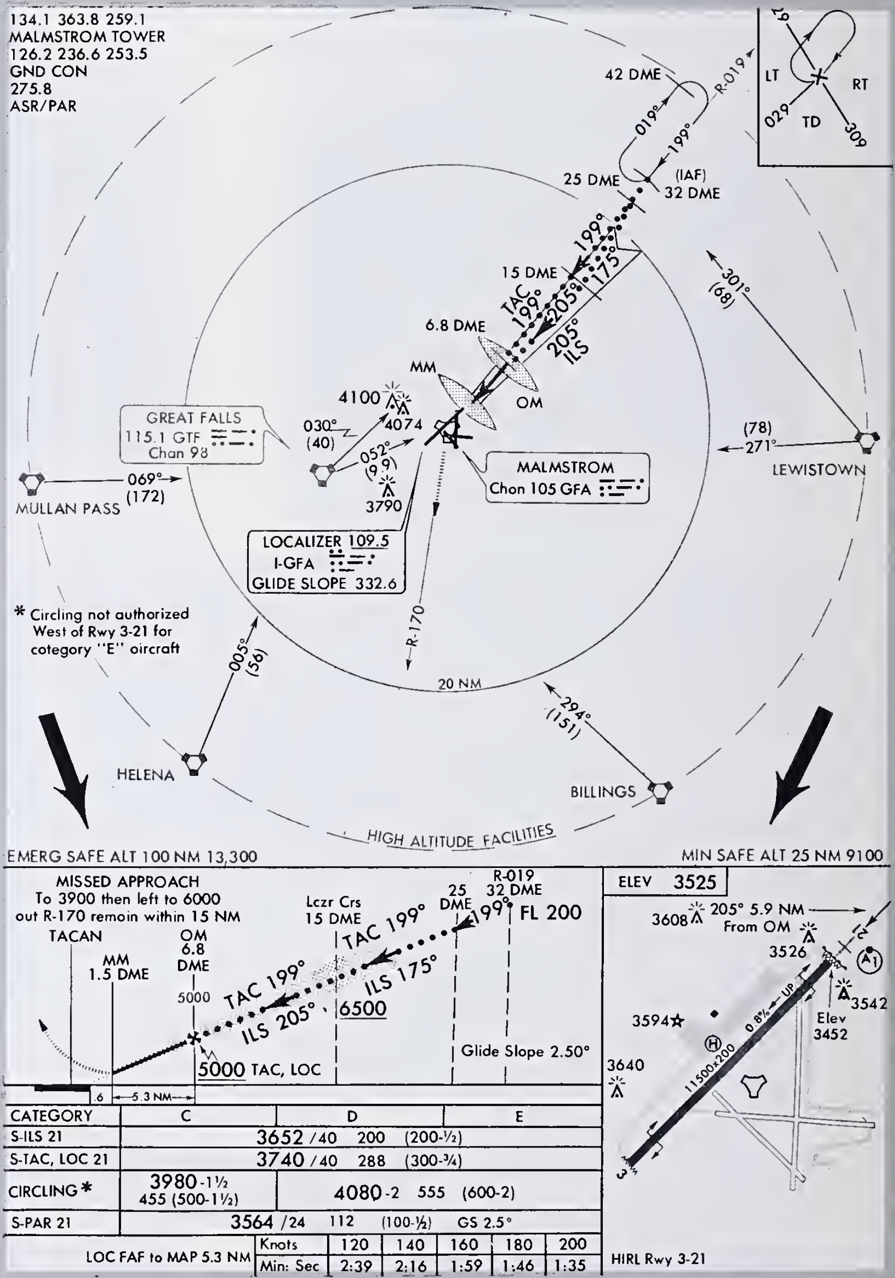
IFR MINIMUM ALTITUDES – PART II

Captain John L. Wilson
1st Combat Evaluation Group
Barksdale AFB LA

Last month we covered the minimum enroute altitudes. Although they are not usually encountered during SAC operations, they are not complicated and can be easily used. This article will discuss minimum altitudes during the approach phase of flight, a relatively straight forward consideration when you are established on and flying along a published approach procedure. It is while following nonpublished routings (radar vectors or Fix-to-Fix) that minimum altitudes can become difficult to determine.

The transition from the enroute structure to an initial approach fix is normally via a feeder facility and routing, or direct routing using Fix-to-Fix or proceed direct procedures. The same obstacle clearance criteria used for the enroute structure are used for published feeder routes; that is, 1000 feet clearance in nonmountanous areas and 2000 feet above the terrain and 100 feet above man-made obstacles in mountainous areas. For direct routes, AFR 60-16 IFR minimum attitude criteria should be used.

AFM 55-9 (TERPS) established the requirement to publish minimum safe altitudes. It states: "A minimum safe altitude (expressed in feet above MSL) is the minimum altitude which provides at least 1000 feet of obstacle clearance for emergency use within a specified distance from the navigation facility upon which a procedure is predicted." (This definition is



* Circling not authorized West of Rwy 3-21 for category "E" aircraft

MISSED APPROACH
To 3900 then left to 6000
out R-170 remain within 15 NM

CATEGORY	C	D	E
S-ILS 21	3652 /40 200 (200-½)		
S-TAC, LOC 21	3740 /40 288 (300-¾)		
CIRCLING *	3980-1½ 455 (500-1½)	4080-2 555 (600-2)	
S-PAR 21	3564 /24 112 (100-½) GS 2.5°		

LOC FAF to MAP 5.3 NM

Knots	120	140	160	180	200
Min: Sec	2:39	2:16	1:59	1:46	1:35

Figure 1

different than the definition of minimum safe altitude in FLIP GP. The 55-9 definition is general in nature.) AFM 55-9 further states: "Such altitudes will be identified as minimum sector altitudes or emergency safe altitudes . . ."

The emergency safe altitude (MSL) provides a 1000 foot clearance (2000 feet in mountainous areas) over all obstructions/terrain within 100 miles of the navigation aid on which the Instrument Approach Chart is centered (unless otherwise specified on the approach plate). The emergency safe altitude is based on the highest terrain within a 100 NM radius of the facility. As the name implies, this altitude is used for emergencies. Let's say you filed to the 019°R/32DME — initial approach fix (Figure 1), but you are on an enroute descent into Malmstrom AFB at 10,000 feet MSL when you lose your communications with ATC. In this case, if you were unable to proceed VFR, you would proceed present position direct to the IAF and climb to 13,300 feet since the IAF is outside 25 NM and your last assigned (10,000) is below the emergency safe altitude.

Minimum Sector Altitudes are established for all procedures with the exception of procedures based on localizers without an associated nondirectional beacon (Figure 2). Minimum Sector Altitudes are not required for approaches such as these when the approach is centered on the outer marker. Caution should be used when flying these approaches since there is no way to determine the minimum safe altitudes from the approach plate.

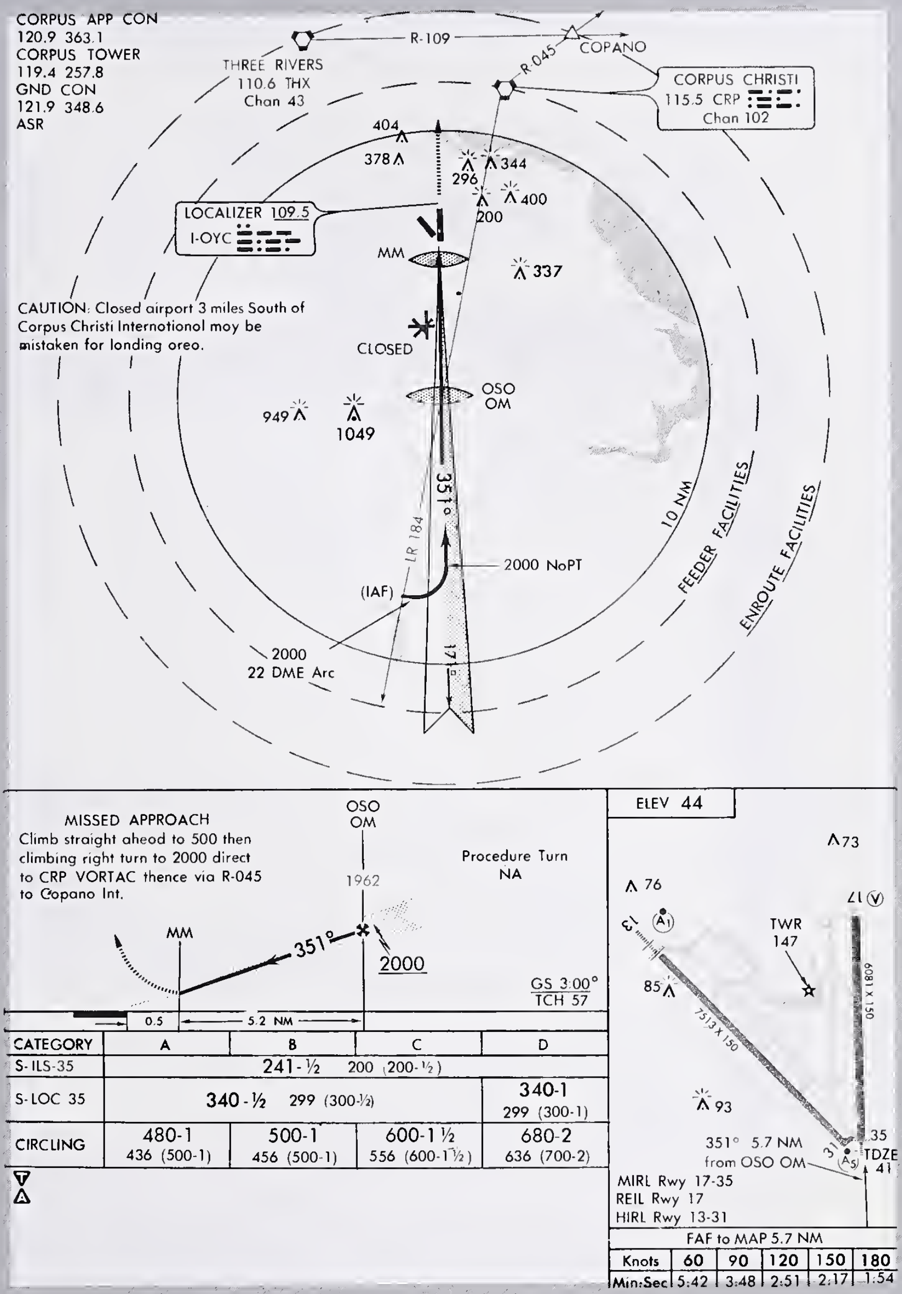
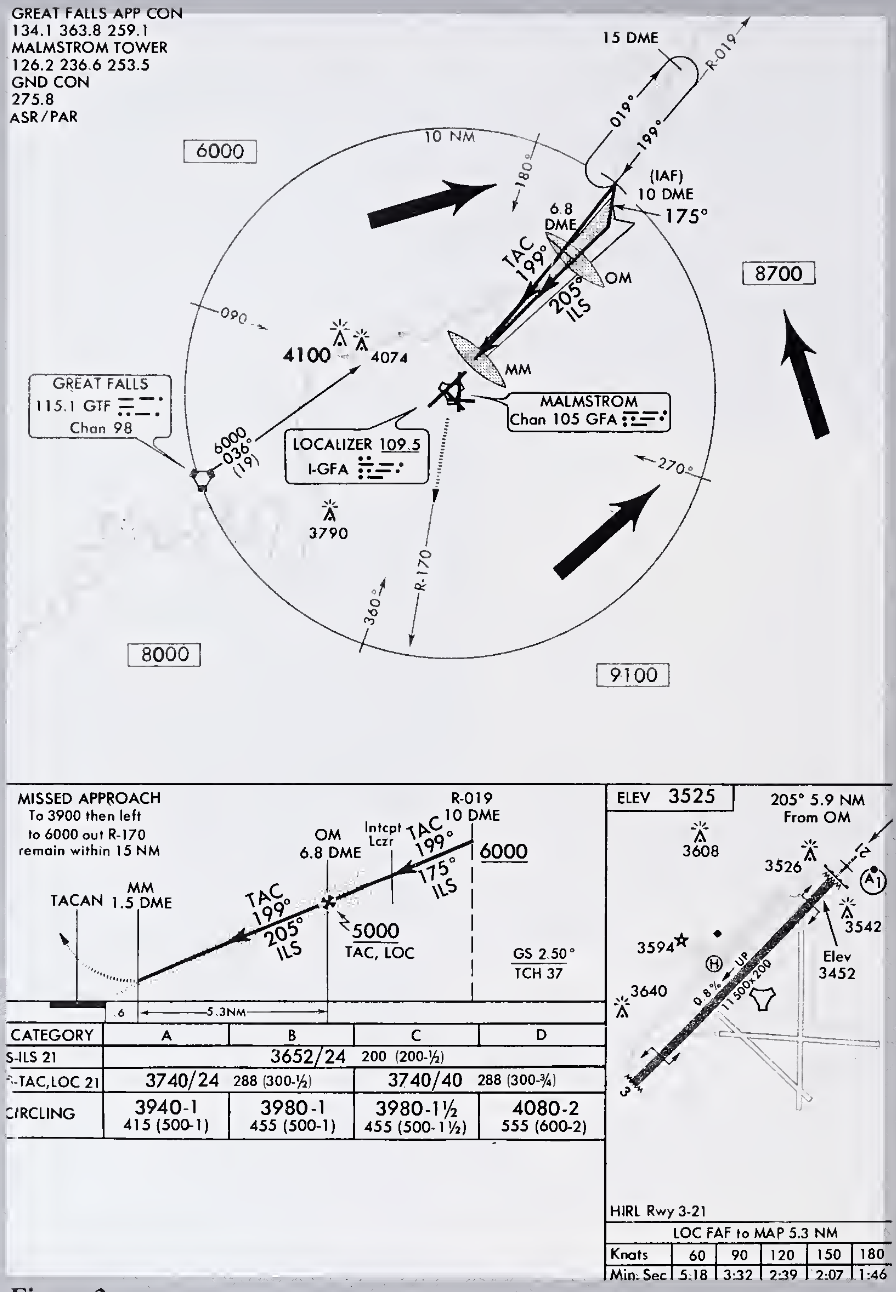


Figure 2

Minimum Sector Altitudes apply within 25 NM of the navigation facility and provide 1000 feet of obstacle clearance. Where minimum altitudes are established on a sector basis, they are depicted as in Figure 3. Each sector has an azimuth width of at least 90 degrees with the minimum altitude based on highest obstacle within that sector and a four-mile boundary around the sector. You should note that the sectors are designated using the inbound course, for instance in Figure 3, the 8700 foot (MSL) minimum sector altitude applies between the 180° and 270° inbound **courses** to the MALMSTROM TACAN. The minimum safe altitude, normally depicted on high altitude approaches, is a special case of the Minimum Sector Altitude and is based on the highest obstruction within a 25 NM radius of the facility. The minimum safe/sector altitudes are again primarily for emergency use, such as lost communications procedures.

Emergency safe and minimum safe/sector altitudes are designed to provide clearance from obstacles, but are not detailed enough for radar vectored approaches. For instance, during radar vectors for the approach in Figure 3 you would not want to arrive at the IAF at 8700 feet and initiate the approach, since the descent rate required to arrive at the glide slope intercept altitude would be around 3000 Fpm — not an easy task while trying to also configure the aircraft. The solution is the minimum



CATEGORY	A	B	C	D
S-ILS 21	3652/24 200 (200-½)			
-TAC,LOC 21	3740/24 288 (300-½)		3740/40 288 (300-¾)	
CIRCLING	3940-1 415 (500-1)	3980-1 455 (500-1)	3980-1½ 455 (500-1½)	4080-2 555 (600-2)

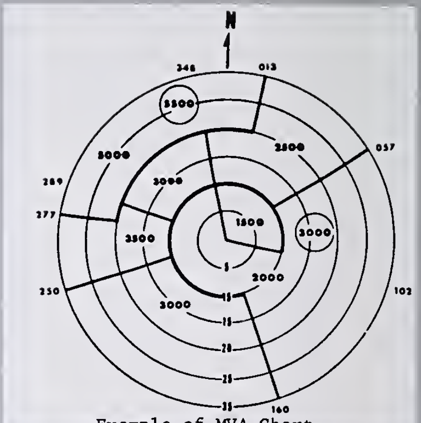
LOC FAF to MAP 5.3 NM

Knots	60	90	120	150	180
Min: Sec	5:18	3:32	2:39	2:07	1:46

Figure 3

vectoring altitudes used by ATC.

Minimum Vectoring Altitudes (MVA) are the lowest altitudes (in feet MSL) that aircraft will be vectored by a radar controller. These altitudes provide 1000 feet of obstacle clearance (2000 feet in mountainous areas in most instances) and assures communications and radar coverage. Figure 4 shows an example of an MVA chart used by controllers. The various sectors are divided into smaller areas than the sectors on approach plates. The sector boundaries are established at least 3 NM from the obstruction determing the MVA, and if need be specific obstacles can be isolated to provide lower altitudes around it. The problem is that the aircrew does not have the capability of determining the MVA. A certain amount of trust must be placed in the controller; however, careful monitoring by aircrews is still necessary.



Example of MVA Chart

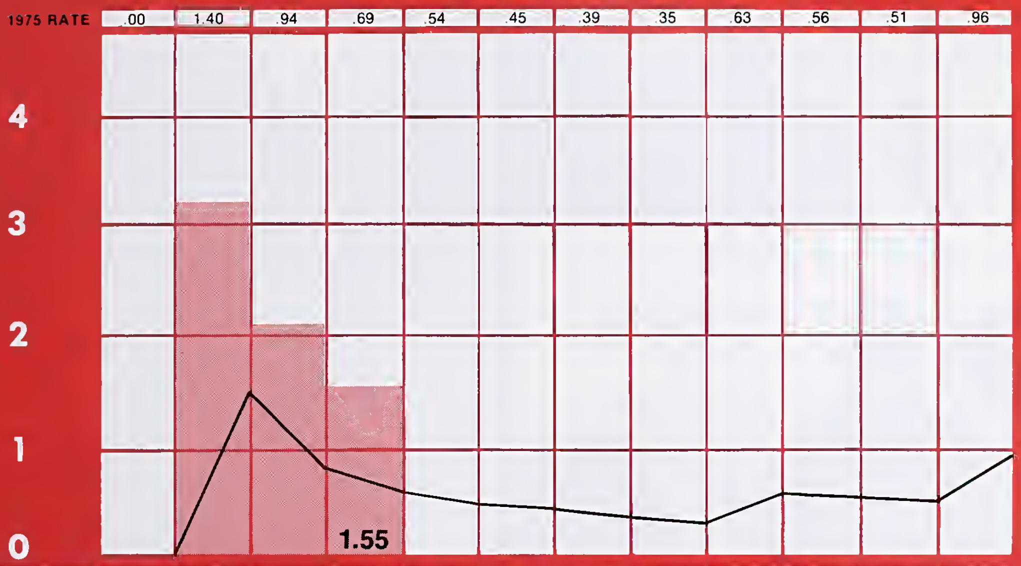
Figure 4

This problem can be circumvented through careful review of the approach and study of the terrain features around the airfield during mission planning. During the approach, the navigator must keep track of the aircraft course and altitude with respect to the terrain. Keep in mind that the ATC system is a cooperative system between the controller and the pilot. It is important that you fully understand what the controller's clearance means and, when there is any doubt, you should query the controller immediately. Know the required actions if communications or ground radar are lost, and be prepared to use them at all times.

The use of minimum IFR altitudes discussed here and in last month's articles are not difficult to apply. They have specific meanings, and as long as they are applied within the specified parameters, no problems should arise. However, careful planning and continuous monitoring are mandatory to insure safe, routine completion of "another day's work."

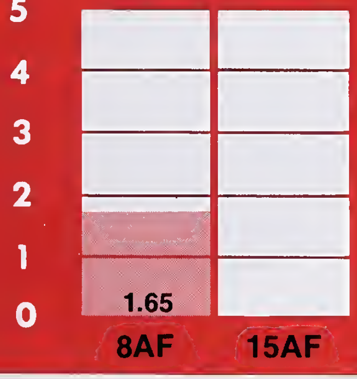
1976 Flying Safety Rate

SAC MAJOR ACCIDENT RATE (PER 100,000 FLYING HRS)



ACCIDENTS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1975	0	1	0	0	0	0	0	0	1	0	0	2
1976	0	2	0	0								

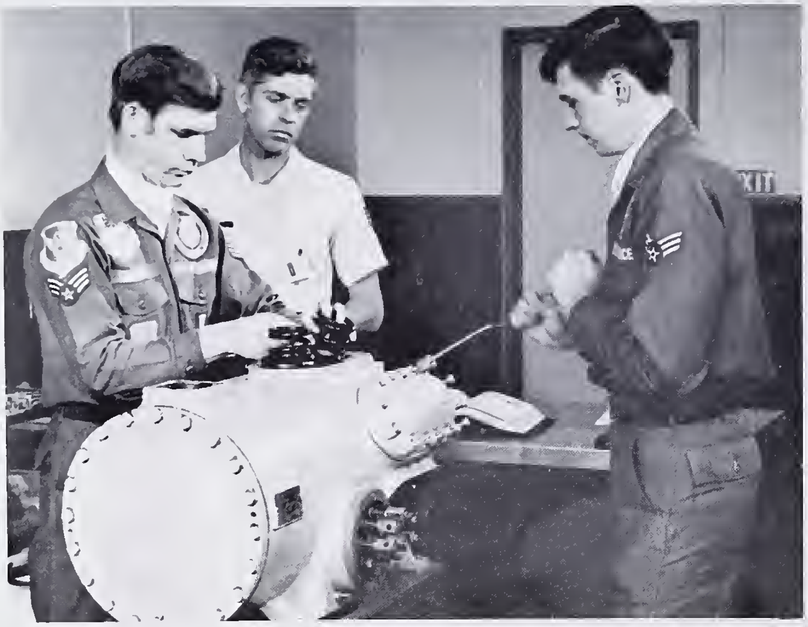
1976 SUBORDINATE CMD RATES



ACCIDENT STATUS

KC-135	FEB 76
FB-111	FEB 76

LEGEND ⁀ =1975 RATE


XIT

91SMW
1976
ENARD
U.S. AIR F

SAC MISSILE COMBAT COMPETITION
STRATEGIC AIR COMMAND
1976

OLYMPIC ARENA 76 PHOTO REVIEW

Upper left — Sergeant Darel B. Reader, left, and Sergeant Randell W. Kiser, right, the civil engineering team representing the 308th Strategic Missile Wing, Little Rock AFB, reassemble a Titan II launch facility water chillercompressor as Technical Sergeant Thomas Cade, center, 3901st Strategic Missile Evaluation Squadron, Vandenberg AFB, scores their exercise. Sergeants Reader and Kiser were unique participants in the 1976 competition. Not only was this the first year two-man civil engineering teams have competed in Olympic Arena; Reader and Kiser are the first Olympic Arena competitors from outside SAC, since civil engineering support at Little Rock is provided by the Military Airlift Command.

Center — Performing a checkout on a Minuteman launch facility power distribution unit, Sergeants Kevin D. Menard, left, and Robert Stevens, the electro-mechanical team from the 91st Strategic Missile Wing, Minot AFB, competed in Olympic Arena '76. Their exercise was scored on the basis of adherence to technical data, accuracy and performance within set time limits.

Upper right — The leading electronics laboratory team going into the fifth day of competition checks out a control monitor and tape transport during Olympic Arena '76. Representing the 321st Strategic Missile Wing from Grand Forks AFB, were seated from left, Sergeants Azell Malone and Ryo J. Stanistreet. Scoring the exercise was, from left, MSgt. Peter Tramm and TSgt. Douglas Westphal.

Lower Left — A1C Robert A. Schloeman puts handcuffs on an intruder caught at a Titan II missile site during an Olympic Arena '76 security exercise. Providing cover is A1C Donald W. Krchmar. Both men represent the 390th Strategic Missile Wing from Davis-Monthan AFB. Playing the part of the intruder was Amn. Mary C. Damschroder.

Bottom right — Airmen First Class Michael K. Deshazer, right, and Mark A. Lorence, center, members of the security police team from the 44th Strategic Missile Wing, Ellsworth AFB, protect a missile re-entry vehicle convoy. Scoring their Strategic Air Command Missile Combat Competition exercise is 2nd Lieutenant Joseph M. Grimes, 4392nd Security Police Squadron, Vandenberg AFB.

OLYMPIC ARENA

TROPHY WINNERS

341st SMW, wins the Blanchard Trophy for '76

COMPETITION WINNERS

1976	341 SMW	Malmstrom AFB, Mt
1975	381 SMW	McConnell AFB, Ks
1974	321 SMW	Grand Forks AFB, ND
1973	90 SMW	F.E. Warren AFB, Wy
1972	381 SMW	McConnell AFB, Ks
1971	351 SMW	Whiteman AFB, Mo
1970	44 SMW	Ellsworth AFB, SD
1969	321 SMW	Grand Forks AFB, ND
1967	351 SMW	Whiteman AFB, Mo

UNIVERSITY OF FLORIDA
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IN THE SPIRIT OF '76

I am an American . . . I believe in this country . . . Unfortunately at times it is unpopular among some to be patriotic and to stand up for Americanism and the principles of democracy. On many occasions I have spoken out on this subject, and have been repaid by being called a "Flag waver" or a "war monger." I have received many phone calls at times that have made life less than comfortable for a while. However, when you have been shot at a few times in a few wars in defense of democracy, phone calls don't bother you very much. So I continue whenever I have the time to give a listening audience a few reasons why I think the practice of patriotism and Americanism is so important now.

This is my country, and I believe in her, and I believe in her flag, and I'll defend her, and I'll fight for her, and I'll serve her, and I'll contribute to her welfare whenever and however I can. If she has any ills, I'll stand by her until in God's given time, through her wisdom and her consideration for the welfare of the entire nation, she will put them to rights.

General Daniel "Chappie" James, Jr.

Commander in Chief ADC
Writing for *Combat Crew*, July 1968